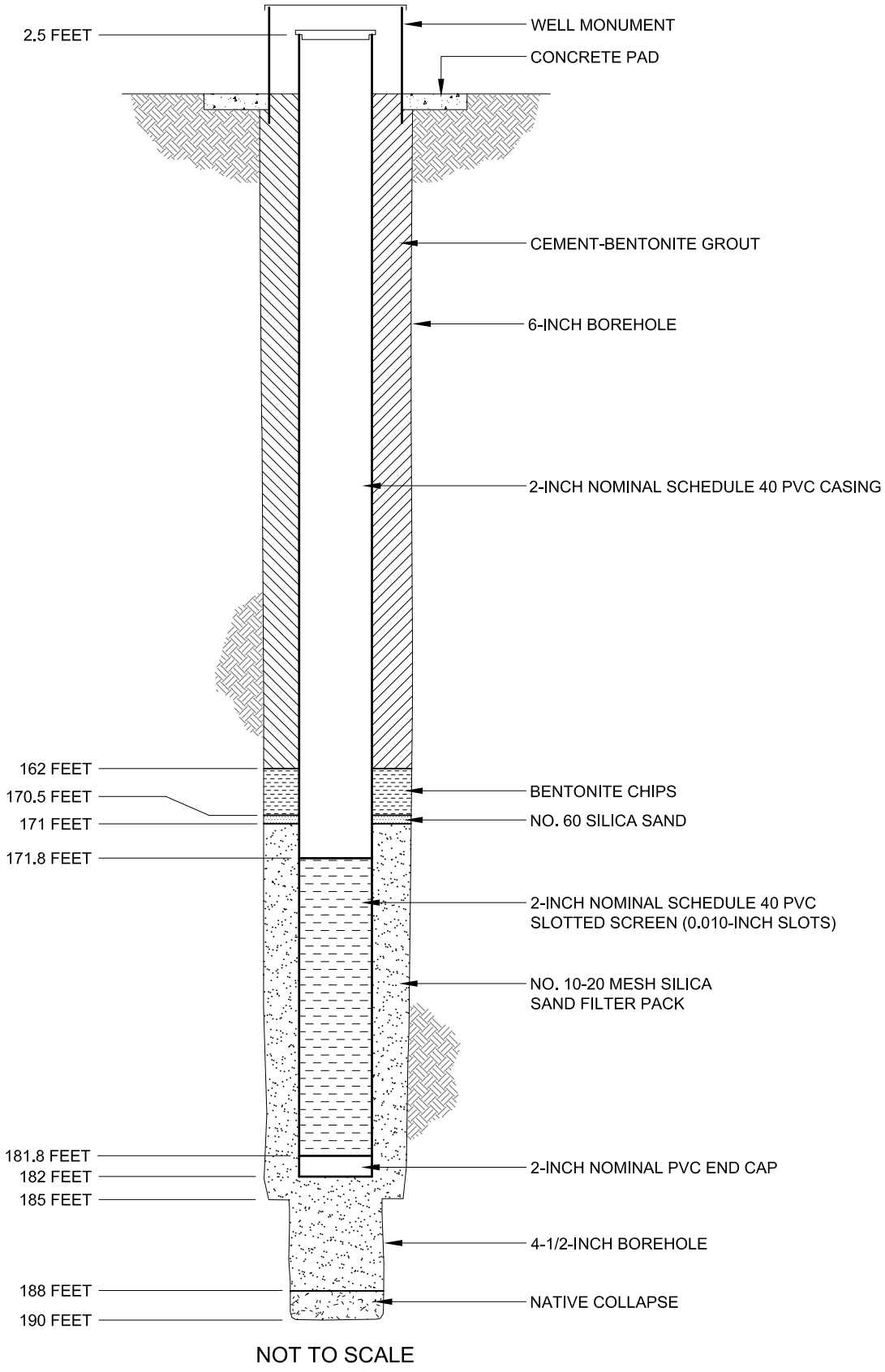

NOT TO SCALE

DATE:	PROJECT NUMBER:			
April 2006	129684		Atlantic Richfield Company	**Figure 2-10**
BROWN AND CALDWELL Carson City, Nevada				**Well B/W-6D Construction Details**

Carson City Cad: P:\ARCO\129684 ? Hydrogeologic Framework Assessment\CAD\Drawings\GW Work Plan March 2006\Figure 2-10.dwg (1=1) 05/24/2006 09:58:33 RJJ

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-6**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **1** of **15**

Boring Location: **West of mine tailings, along Locust Drive**		Elevation: **4431.5 feet amsl**	East: **319206.9** North: **1554968.4**
Drilling Contractor: **WDC**	Driller: **B. Zamow**	Date Started: **9/23/05**	Date Finished: **9/26/05**
Drilling Equipment: **Gus Pech GP24-400RS, Diedrich Sonic Head**		Total Depth: (feet) **190.0**	Water Depth: (feet) **135' / 100.43'**
Sampling Method: **Core Barrel**	Borehole Diameter: **6"**	Well Diameter and Material: **2-inch PVC**	
Drilling Method: **Sonic, utilized 6" casing and a 4.5" core barrel**		Screened Interval and Well Depth: **171.8-181.8 ft., bottom at 182.0 ft.**	
Well Seal: **Bentontite and Cement**		Slot Size: **0.020"**	Filter Material: **#10-20 Silica Sand**
Logged By: **C. Gardner**		Development Method: **Swabbed, bailed, pumped**	

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		SM	**SILTY SAND** (0-2 feet) Dry, loose to medium dense, no odor. Primarily medium to fine sand with ~10% fine gravel to ~15 mm and ~15% silt and clay. The gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					Descriptions of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System. Munsell colors described wet.
	4430							Horizontal survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet.
		SC	**CLAYEY SAND** (2-5 feet) Dry, dense, no odor. Primarily medium to fine sand with ~5% coarse sand to 4 mm and ~30% silt and clay. The sand is angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line.
								All depths are below land surface unless stated otherwise.
5		SC	**SILTY SAND** (5-7 feet) Dry, medium dense, no odor. Primarily medium to fine sand with trace coarse sand to 4 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and have a strong reaction to HCl.					WELL DESIGN for B/W-6D: Screened Interval: 171.8-181.8 feet. Bottom of sump: 182 feet.
	4425							Cement Grout: 0-162 feet. Bentonite Chips: 162-170.5 feet. Filter Pack: #60 Sand 170.5-171 feet, #10-20 Sand 171-188 feet. Native Collapse: 188-190 feet
		SM	**SILTY SAND** (7-8 feet) Dry, dense, no odor. Primarily medium to fine sand with ~5% coarse sand to 4 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and have a weak to strong reaction to HCl.					
		SM	**SILTY SAND** (8-14 feet) Dry, dense, no odor. Primarily medium to fine sand with ~5% fine gravel to ~10 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					Depth to Water Measuring Point is Top of PVC Casing. Top of PVC Elevation: 4,434.01 feet, amsl. PVC Stick-up: 2.5 feet above land surface.

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-6**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **2** of **15**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
	4420							
		SM	**SILTY SAND** (14-16.75 feet) Dry, dense, no odor. Primarily medium to fine sand with ~5% coarse sand to 4 mm and ~20% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and have a weak to strong reaction to HCl.					
15	4415							
		SC	**CLAYEY SAND** (16.75-17.25 feet) Dry, dense, no odor. Primarily medium to fine sand to ~2 mm with ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		SW-SM	**WELL-GRADED SAND with SILT** (17.25-19.5 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~10% fine gravel to ~6 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SC	**CLAYEY SAND** (19.5-24 feet) Dry, dense, no odor. Primarily medium to fine sand with trace fine gravel to 8 mm and ~35% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown to grayish brown, and have a strong reaction to HCl.					
20	4410							

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-6**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **3** of **15**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
25		SM	**SILTY SAND** (24-26 feet) Dry, dense, no odor. Primarily medium to fine sand with trace fine gravel to ~10 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
	4405	SM	**SILTY SAND** (26-30 feet) Dry, dense, no odor. Primarily medium to fine sand with ~5% fine gravel to ~5 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
30		CL	**SANDY LEAN CLAY** (30-31 feet) Dry, hard, no odor. Primarily silt and clay with ~50% medium to fine sand and trace coarse sand to ~3 mm. The sand is angular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.					
	4400	SC	**CLAYEY SAND** (31-31.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~5% fine gravel to ~10 mm and ~40% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SM	**SILTY SAND** (31.5-32 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~10% gravel to ~20 mm and ~20% silt and clay. The sand is angular to subrounded, the gravel is subangular to subrounded. The fines have low plasticity and toughness, and are brown.					
35		SM	**CLAYEY SAND** (32-32.75 feet) Dry, very dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown, and have a strong reaction to HCl.					
		SC	**SILTY SAND** (32.75-33.5 feet) Dry, very dense, no odor. Primarily medium to fine sand to ~2 mm with ~20% silt and clay. The sand is angular to subrounded. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		SM	**SILTY SAND** (33.5-34 feet)					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-6**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **4** of **15**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
	4395		Dry, very dense, no odor. Primarily medium to fine sand with ~10% fine gravel to 8 mm and ~15% silt and clay. The sand and gravel are subangular to subrounded. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
			CLAYEY SAND (34-35.75 feet) Dry, very dense, no odor. Primarily medium to fine sand to ~2 mm with ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
			SILTY SAND (35.75-38.5 feet) Dry, very dense, no odor.					
		CL	Primarily medium to fine sand with ~10% fine gravel to ~10 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are					
		SM	nonplastic, are brown, and have a strong reaction to HCl.					
			SANDY LEAN CLAY (38.5-39 feet) Dry, hard, no odor.					
40		SM	Primarily silt and clay with ~50% medium to fine sand to ~2 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.					
		SM	**SILTY SAND** (39-39.75 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~10% fine gravel to ~10 mm and ~20% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines					
		CL	are nonplastic, are brown, and have a strong reaction to HCl.					
	4390		**SILTY SAND** (39.75-40.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~5% coarse sand to 4 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, and are brown.					
			SILTY SAND (40.5-41 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~10% fine gravel to ~10 mm and ~20% silt and clay. The sand is angular to					
		SC	subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
			SANDY LEAN CLAY (41-43 feet) Dry, hard, no odor.					
		CL	Primarily silt and clay with ~45% medium to fine sand and trace fine gravel to ~5 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.					
45			**CLAYEY SAND** (43-43.75 feet) Dry, very dense, no odor. Primarily medium to fine sand with trace fine gravel to ~10 mm and ~40% silt and clay. The sand is subangular to					
		CL	subrounded. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
			SANDY LEAN CLAY (43.75-45.5 feet) Dry, hard, no odor.					
	4385	SM	Primarily silt and clay with ~40% medium to fine sand with trace fine gravel to ~10 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.					
			SANDY LEAN CLAY (45.5-46.5 feet) Dry, no odor. Primarily silt and clay with ~45% medium to fine sand with trace fine gravel to ~10 mm. The sand is subangular to					
		SM	subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown (7.5YR 5/3), and have a strong reaction to HCl.					
			SILTY SAND with GRAVEL (46.5-48 feet) Dry, very dense, no odor.					
		SW-	Primarily coarse to medium sand with ~20% fine gravel to					

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-6**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **5** of **15**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		SM	~15 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
		SC	**SILTY SAND with GRAVEL** (46.5-48 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~15% fine gravel to ~10 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
50		SC	**WELL-GRADED SAND with SILT** (49-49.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with trace fine gravel to 8 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
	4380	SM	**CLAYEY SAND** (49.5-50 feet) Dry, very dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and low toughness, are brown, and have a strong reaction to HCl.					
		SM	**CLAYEY SAND** (50-51.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~5% fine gravel to 8 mm and ~40% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SC	**SILTY SAND** (51.5-52.25 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~5% fine gravel to 12 mm and ~20% silt and clay. The sand is angular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
55		SC	**SILTY SAND** (40.5-41 feet) Dry, very dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~35% silt and clay. The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
	4375	SM	**CLAYEY SAND** (53-54.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~10% fine gravel to ~10 mm and ~25% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
			CLAYEY SAND (54.5-56 feet) Dry, very dense, no odor. Primarily medium to fine sand to ~1 mm with ~40% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are grayish brown, and have a strong reaction to HCl.					
			SILTY SAND (56-60.5 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~10% fine gravel to ~10 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have low plasticity and toughness, are brown, and have a strong reaction to HCl.					
60		SM	**SILTY SAND** (60.5-62 feet) Dry, very dense, no odor. Primarily medium to fine sand with ~5% fine gravel to ~15 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
	4370	SC	**CLAYEY SAND** (62-63.5 feet)					

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-6**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **6** of **15**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			Dry, very dense, no odor. Primarily medium to fine sand to ~1 mm with ~30% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
		SC	**CLAYEY SAND** (63.5-65 feet) Dry, very dense, no odor. Primarily medium to fine sand with trace fine gravel to ~5 mm and ~25% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
65		SW-SM	**WELL-GRADED SAND with SILT** (65-68.75 feet) Dry, dense, no odor. Primarily medium to fine sand with ~5% fine gravel to ~10 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have no reaction to a strong reaction to HCl.					
	4365							
		SM	**SILTY SAND** (68.75-75 feet) Dry, dense, no odor. Primarily medium to fine sand with ~10% fine gravel to ~15 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
70								
	4360							
75		SW-SM	**WELL-GRADED SAND with SILT** (75-76 feet) Dry, dense, no odor.					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-6**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **7** of **15**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			Primarily medium to fine sand with trace coarse sand to ~3 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
	4355	SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (76-80 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~15% fine gravel to ~15 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
80		SM	**SILTY SAND** (80-83 feet) Dry, dense, no odor. Primarily medium to fine sand with ~10% fine gravel to ~15 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
	4350	SW-SM	**WELL-GRADED SAND with SILT and GRAVEL** (83-85 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~15% fine gravel to ~15 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
85		SW	**WELL-GRADED SAND** (85-87.5 feet) Dry, medium dense, no odor. Primarily coarse to medium sand to ~4 mm with ~5% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and have a weak reaction to HCl.					
	4345	SW-SM	**WELL-GRADED SAND with SILT** (87.5-88.5 feet) Dry, medium dense, no odor. Primarily coarse to medium sand with ~10% fine gravel to 8 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-6**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **8** of **15**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		SM	are nonplastic, are brown, and have a strong reaction to HCl.					
			SILTY SAND (88.5-90.5 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~5% fine gravel to ~5 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
90								
		SW	**WELL-GRADED SAND** (90.5-93.5 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~5% fine gravel to 8 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
	4340							
		SM	**SILTY SAND** (93.5-94 feet) Dry, medium dense, no odor. Primarily medium to fine sand with ~5% coarse sand to 4 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and have a weak reaction to HCl.					
		CL	**SANDY LEAN CLAY** (94-95 feet) Dry, hard, no odor. Primarily silt and clay with ~50% medium to fine sand to ~1 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 4/3), and do not react to HCl.					
95		SM	**SILTY SAND with GRAVEL** (95-97.5 feet) Dry, very dense, no odor. Primarily sand with ~20% fine gravel to ~10 mm and ~15% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
	4335							
		CL	**SANDY LEAN CLAY** (97.5-99 feet) Dry, hard, no odor. Primarily silt and clay with ~45% medium to fine sand and ~5% coarse sand to ~3 mm. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown (10YR 5/3), and have a strong reaction to HCl.					
		SW-SM	**WELL-GRADED SAND with SILT** (99-102 feet) Moist, very dense, no odor. Primarily medium to fine sand with ~5% fine gravel to ~5 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have a weak reaction to HCl.					
100								
	4330							

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-6**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **9** of **15**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
		CL	**SANDY LEAN CLAY** (102-102.5 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~40% sand and ~10% fine gravel to ~15 mm. The sand is subangular to subrounded, the gravel is angular to subangular. The fines have medium plasticity and toughness, are strong brown (7.5YR 4/6), and have a strong reaction to HCl.					
		SC	**CLAYEY SAND with GRAVEL** (102.5-105 feet) Dry to moist, very dense, no odor. Primarily coarse to medium sand with ~15% gravel to ~20 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
105		SW-SM	**WELL-GRADED SAND with SILT** (105-107 feet) Moist (some saturated), medium dense, no odor. Primarily medium to fine sand with ~10% fine gravel to ~10 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and do not react to HCl.					
	4325							
		SM	**SILTY SAND with GRAVEL** (107-109 feet) Dry to moist, medium dense, no odor. Primarily coarse to medium sand with ~20% fine gravel to ~15 mm and ~30% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SW-SM	**WELL-GRADED SAND with SILT** (109-110 feet) Moist, medium dense, no odor. Primarily medium to fine sand with ~10% fine gravel to ~10 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and do not react to HCl.					
110		SM	**SILTY SAND with GRAVEL** (110-111.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~15% fine gravel to ~10 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.					
	4320							
		SM	**SILTY SAND** (111.5-116 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% fine gravel to 12 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have no reaction to a weak reaction to HCl.					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-6**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **10** of **15**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
115								
	4315	SM	**SILTY SAND** (116-116.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~10% coarse sand to ~3 mm and ~25% silt and clay. The sand is subangular to subrounded. The fines have low plasticity and toughness, are brown, and do not react to HCl.					
		SW-SM	**WELL-GRADED SAND** (116.5-117.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~15% coarse sand to 4 mm and ~10% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and do not react to HCl.					
		SM	**SILTY SAND** (117.5-119 feet) Dry to moist, dense, no odor. Primarily coarse to medium sand with ~10% fine gravel to 8 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and do not react to HCl.					
120		SW-SM	**WELL-GRADED SAND with SILT** (119-121.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with trace fine gravel to ~10 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and do not react to HCl.					
	4310	SM	**SILTY SAND** (121.5-125 feet) Dry, very dense, no odor. Primarily medium to fine sand with trace coarse sand to ~3 mm and ~15% silt and clay. The sand is subangular to subrounded. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
125		SC	**CLAYEY SAND** (125-128 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with ~5% coarse sand to ~3 mm and ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
	4305							

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-6**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **11** of **15**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
130	4300	SM	**SILTY SAND with GRAVEL** (128-134 feet) Dry to moist, dense, no odor. Primarily coarse to medium sand with ~15% fine gravel to ~15 mm and ~15% silt and clay. The sand is angular to subangular, the gravel is subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
135 ▽		CL	**SANDY LEAN CLAY** (134-135 feet) Dry, hard, no odor. Primarily silt and clay with ~50% medium to fine sand and trace fine gravel to ~10 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are weak red (2.5YR 5/4), and have a strong reaction to HCl.					
		SW-SM	**WELL-GRADED SAND with SILT** (135-136 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to ~40 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have a weak reaction to HCl.	B/W-6 @ 135 - 140 Ft.				
	4295	SW	**WELL-GRADED SAND with GRAVEL** (136-139 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~25% gravel to ~40 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have a weak reaction to HCl.					
		SW-SM	**WELL-GRADED SAND with SILT** (139-139.5 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with ~10% gravel to ~40 mm and ~10% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and have a weak reaction to HCl.					
140		SC	**CLAYEY SAND with GRAVEL** (136.5-143 feet) Dry to moist, dense, no odor. Primarily coarse to medium sand with ~15% gravel to ~50					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-6**

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			mm and ~40% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and low toughness, are brown, and have a strong reaction to HCl.					
	4290							
		SC	**CLAYEY SAND** (143-143.5 feet) Dry to moist, dense, no odor. Primarily medium to fine sand to ~2 mm with ~35% silt and clay. The sand is subangular to subrounded. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
		SC	**CLAYEY SAND** (143.5-144 feet) Dry to moist, dense, no odor. Primarily medium to fine sand with trace fine gravel to ~5 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
145		SM	**SILTY SAND** (144.5-145 feet) Saturated, medium dense, no odor. Primarily medium to fine sand with trace fine gravel to ~5 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines are nonplastic, are brown, and do not react to HCl.					
		SC	**CLAYEY SAND** (145-149 feet) Moist, dense, no odor. Primarily medium to fine sand with ~5% fine gravel to ~15 mm and ~40% silt and clay. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
	4285							
		CL	**SANDY LEAN CLAY** (149-153 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~40% medium to fine sand and ~5% gravel to ~30 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown (7.5YR 5/4), and have a weak to strong reaction to HCl.					
150								
	4280							
		SM	**SILTY SAND** (153-157 feet) Dry to moist, dense, no odor. Primarily coarse to medium sand with ~10% fine gravel to ~10 mm and ~30% silt and clay. The sand is subangular to					

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-6**

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			subrounded, the gravel is angular to subangular. The fines have low plasticity and toughness, are brown, and have a weak to strong reaction to HCl.					
155	4275	SW	**WELL-GRADED SAND with GRAVEL** (157-160 feet) Saturated, medium dense, no odor. Primarily coarse to medium sand with ~15% fine gravel to ~15 mm and ~5% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and do not react to HCl.	B/W-6 @ 156 - 161 Ft.				
160	4270	SM	**SILTY SAND** (160-162.5 feet) Moist with saturated seams, dense, no odor. Primarily coarse to medium sand with ~10% fine gravel to ~10 mm and ~15% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have no reaction to a weak reaction to HCl.					
		SM	**SILTY SAND** (162.5-164.5 feet) Dry to moist, dense, no odor. Primarily coarse to medium sand with ~10% fine gravel to ~10 mm and ~20% silt and clay. The sand is subangular to subrounded, the gravel is angular to subangular. The fines are nonplastic, are brown, and have no reaction to a strong reaction to HCl.					
		CL	**SANDY LEAN CLAY** (164.5-165 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~40% medium to fine sand and ~5% gravel to ~30 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are brown (7.5YR 5/4), and have a weak to strong reaction to HCl.					
165		CL	**SANDY LEAN CLAY** (165-166.5 feet) Dry to moist, hard, no odor. Primarily silt and clay with ~40% medium to fine sand and ~5% fine gravel to ~10 mm. The sand is subangular to subrounded, the gravel is subangular. The fines have medium plasticity and toughness, are reddish brown (5YR					
	4265	SC						

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06

BROWN AND CALDWELL

BORING LOG

Project Name: **Yerington Groundwater Investigation** Well Number: **B/W-6**

Soil Boring ☐ Monitoring Well ☒ Project Number: **121243.021** Sheet **14** of **15**

Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			5/4), and do not react to HCl.					
			CLAYEY SAND with GRAVEL (166.5-168 feet) Moist, medium dense, no odor. Primarily sand with ~30% gravel to ~75 mm and ~40% silt and clay. The sand and gravel are subangular. The fines have medium plasticity and toughness, are reddish brown, and do not react to HCl.					
		SC	**CLAYEY SAND with GRAVEL** (168-174 feet) Dry to moist, dense, no odor. Primarily sand with ~20% gravel to ~25 mm and ~35% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl. Interval is cobble penetrated from 172.5 to 173 feet.					
170								
	4260							
		SC	**CLAYEY SAND** (174-175 feet) Dry, very dense, no odor. Primarily coarse to medium sand with ~10% gravel to ~20 mm and ~40% silt and clay. The sand is angular to subangular. The fines have medium plasticity and toughness, are brown, and do not react to HCl.					
175		SC	**CLAYEY SAND** (175-175.5 feet) Dry, very dense, no odor. Primarily sand with ~10% fine gravel to ~10 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown, and have no reaction to a strong reaction to HCl.					
		GC						
		GW-GM	**CLAYEY GRAVEL with SAND** (175.5-176 feet) Dry to moist, dense, no odor. Predominately gravel to ~50 mm with ~30% sand and ~30% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
	4255							
		GC	**WELL-GRADED GRAVEL with SILT and SAND** (176-177.25 feet) Saturated, medium dense, no odor. Predominately gravel to ~40 mm with ~15% coarse sand and ~10% silt and clay. The sand and gravel are angular to subangular. The fines are nonplastic, are brown, and have a strong reaction to HCl.					
			CLAYEY GRAVEL with SAND (177.25-179 feet) Moist, dense, no odor. Predominately gravel to 30 mm with ~20% sand and ~40% silt and clay. The sand and gravel are angular to subangular. The fines have medium plasticity and toughness, are brown, and have a strong reaction to HCl.					
			WEATHERED TUFF (179-181 feet)					

B/W-6 @ 174 - 179 Ft.

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Depth (feet)	Elevation (feet)	USCS Group Symbol	Description	Sample No.	Graphic Log: Sample	Graphic Log: Lithology	Graphic Log: Well	Remarks
			Dry to moist, very hard, no odor. Weathered tuff with ~50% fines. The weathered tuff is angular to subangular, to ~30mm. The fines have medium plasticity and toughness, are light yellowish brown (2.5Y 6/3) to pale yellow (2.5Y 7/3), and have a strong reaction to HCl.					
	4250							
			WEATHERED TUFF (182.5-183.25 feet) Dry, very hard, no odor. Weathered tuff with ~50% fines. The weathered tuff is angular to subangular, to ~30mm. The fines have medium plasticity and toughness, are light yellowish brown (10YR 6/4), and do not react to HCl.					
			WEATHERED TUFF (183.25-185 feet) Dry, very dense, no odor. Weathered tuff with ~20% fines. The weathered tuff is angular to subangular, to ~75mm. The fines have medium plasticity and toughness, are light yellowish brown, and do not react to HCl. Six-inch cobble at ~185 feet.					
185								
			WEATHERED TUFF (185.5-188 feet) Dry to moist, very hard, no odor. Weathered tuff with ~80% fines. The weathered tuff is angular to subangular, to ~2mm. The fines have medium plasticity and toughness, are light gray (10YR 7/2), and do not react to HCl.					
	4245							
			WEATHERED TUFF (188-189 feet) Dry, very hard, no odor. Weathered tuff with ~50% fines. The weathered tuff is angular to subangular, to ~30mm. The fines have medium plasticity and toughness, are light yellowish brown (10YR 6/4), and do not react to HCl. NO RECOVERY					
190								

SONIC METHOD LOG YERINGTON.GPJ BRN&CALD.GDT 1/31/06